

Commonwealth of Kentucky
Division for Air Quality

PERMIT APPLICATION SUMMARY FORM

Completed by: Shanaka Ewing

General Information

Name:	University of Kentucky
Address:	Room 215, Peterson Building, Lexington, Kentucky 40506
Date application received:	April 29, 2004 and June 23, 2004
SIC/Source description:	8221 Universities
AFS(10-digit) Plant ID:	21-067-00003
Application log number:	56520
Permit number:	V-03-023 Revision 1

Application Type/Permit Activity

<input type="checkbox"/> Initial issuance	<input type="checkbox"/> General permit
<input type="checkbox"/> Permit modification	<input type="checkbox"/> Conditional major
<input type="checkbox"/> Administrative	<input checked="" type="checkbox"/> Title V
<input type="checkbox"/> Minor	<input checked="" type="checkbox"/> Synthetic minor
<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Operating
<input type="checkbox"/> Permit renewal	<input checked="" type="checkbox"/> Construction/operating

Compliance Summary

<input type="checkbox"/> Source is out of compliance	<input type="checkbox"/> Compliance schedule included
<input checked="" type="checkbox"/> Compliance certification signed	

APPLICABLE REQUIREMENTS LIST:

<input type="checkbox"/> NSR	<input checked="" type="checkbox"/> NSPS	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> PSD	<input type="checkbox"/> NESHAPS	<input type="checkbox"/> Other
<input type="checkbox"/> Netted out of PSD/NSR	<input checked="" type="checkbox"/> Not major modification per 401 KAR 51:017, 1(23)(b) or 51:052,1(14)(b)	

MISCELLANEOUS:

- ☐ Acid rain source
- ☐ Source subject to 112(r)
- ☒ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☒ Diagrams or drawings included
- ☐ Confidential business information (CBI) submitted in application
- ☐ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

Emissions Summary

Pollutant	Actual (tpy)	Title V Potential (tpy)
PM	24.8	61.4
SO ₂	645.6	1428.7
NO _x	282	1017.8
CO	89	260.8
VOC	10.1	22.4
PM10	18	46.8
LEAD	0.018	0.40

Actuals based on 2003 emission survey plus the new construction totals

SOURCE DESCRIPTION:

Applications to modify their operating permit application were received from The University of Kentucky on April 29, 2004 and June 23, 2004, and called complete on July 23, 2004. The modification includes installation of two 73mmBtu/hr natural gas fired boilers, a 4000 horsepower diesel generator, and a 20,000 gallon diesel fuel storage tank. The modification applications also included corrections to the initial Title V application submitted to the Division in 1998. Additions in this application include 65 diesel generators ranging from 1 horsepower to over 2885 horsepower (installed between the years 1963 to 2002), five large underground storage tanks for diesel fuel, jet fuel and unleaded gas (constructed between 1972 and 1999), 79 small diesel fuel storage tanks (constructed between 1972 and 1999), and 37 indirect heat exchangers (consisting of 2-125 mmBtu/hr natural gas-fired units, 2-94 mmBtu/hr coal-fired units, 2-75 mmBtu/hr coal-fired units, 2-144 mmBtu/hr natural gas fired unit, and 29-<10 mmBtu/hr units). Two paint spray booths were included which have been permitted since October, 2003. The spray booths have a 2.0 gallons/hr maximum operating rate.

EMISSION AND OPERATING CAPS DESCRIPTION:

The source has the potential to be a major source for nitrogen oxides (NO_x) and sulfur dioxide (SO₂) emissions. However, the source has requested a federally enforceable limit to the modification to cap the natural gas and the fuel oil usage to 624 mmfc/yr and 706,800 gallon/yr respectively for both boilers. In addition, the facility is installing Lo-NO_x burners (which produce 30ppm or 0.036 lb/mmBtu NO_x, and carbon monoxide (CO) at 100 ppm or 0.075 lb/mmBtu per boiler) to reduce emissions from the units. This is being done to keep emissions below significant net emission rates and to preclude applicability of regulation 401 KAR 51:017, Prevention of significant deterioration of air quality. Additionally, diesel fuel usage and hours of operation for the 2885 hp emergency generator shall not exceed 27,000 gallons per year and 200 hours respectively. The emissions from both new boilers (EU 51 & 52) and the emergency generator (EU 53) shall not exceed 30 tons per year of nitrogen oxides, 26 tons per year of sulfur dioxide, and 32 tons per year of carbon monoxide. Based on the emissions calculations, the Division has determined that this will be a significant modification to the existing Title V permit (401 KAR 52:020, Section 16), therefore requiring a

public review (401 KAR 52:020, Section 25). Emissions were calculated based on current AP 42 emission factors and vendor guarantees on nitrogen oxides and carbon monoxide for the boilers, which were submitted by the permittee to the Division. Additional information used in making this review was obtained from file records.